



# Housing Profiles Among Adults Attending an Intensive Outpatient Program for Co-Occurring Disorders

## Abstract

Housing stability is an important correlate of recovery status and well-being. The present research brief sought to describe participant housing profiles among a sample of 6301 people receiving intensive outpatient services (IOP) for co-occurring substance use and mental health challenges and examine any relationship between these profiles and treatment outcomes. About half of participants remained in the housing situation where they started at intake (31.9% stayed in a recovery residence, 18.1% stayed in a permanent address, 2.3% stayed without a permanent residence or unhoused, and 0.5% stayed in some other housing situation). Of the other half who changed housing during treatment, the most common shifts were moving from a recovery residence to a permanent residence (16.5%), from no permanent address/unhoused to a recovery residence (6.8%), and from a permanent address to a recovery residence. Notably, just under 6% of participants moved from potentially more stable housing to having no permanent address/being unhoused. Those who started treatment at a permanent address and moved to a recovery residence by discharge were more likely than those who remained in a recovery residence throughout treatment to report improvement in depression, anxiety, and recovery scores. Moreover, moving away from a recovery residence during treatment (compared to staying in one throughout) was associated with a decreased likelihood of improved recovery, “successful” discharge, and higher sober days at discharge. Housing changes may be an important client variable to consider when understanding treatment outcomes.

## Background

Housing stability significantly correlates with quality of life and recovery status (Nesse, et al., 2020). Individuals residing in stable housing environments are less prone to engaging in emergency services or encountering law enforcement interactions (Kerman, et al., 2018). Environments characterized by housing stability, such as recovery housing, afford individuals the opportunity to concentrate on their recovery journey and increase access to essential social support services (Kerman, et al., 2018).

Research on housing status underscores that housing stability is not a one-dimensional construct. Existing literature defines housing stability and quality through various factors, including meeting basic needs, affordability, permanence, autonomy and independence, connectedness, safety, and supportiveness (Yuan, et al., 2023; Frederick, et al., 2014).

To better understand the impact of housing stability on clients participating in an intensive outpatient program (IOP), this evaluation formulated housing profiles based on reported housing types upon intake and discharge. It aimed to discern any relationship between the housing profiles and outcomes of the IOP treatment.

The present brief sought to answer the following questions:

1. What are the housing profiles of participants who attend the IOP from intake to discharge?
2. How are housing profiles related to IOP treatment outcomes from intake to discharge?

## Methods

Clients receiving intensive outpatient (IOP) services at NUWAY<sup>®</sup> were given the option at intake to enroll in a study examining the impact of recovery housing on outcomes, such as depression, anxiety, and recovery. The present brief was generated from this dataset. Electronic surveys were completed at intake and discharge, and then at three, nine and sixteen months after discharge. Surveys included demographic questions and outcome-related questions. Identifying information was removed for analysis to protect the privacy of participants.

## Statistical Analysis:

To examine the associations between outcomes and housing profiles, logistic regression models were used (odds ratios and 95% confidence intervals were calculated and significance was set at  $p < 0.05$ ). Outcomes were all binary and included PHQ-9 (Kroenke, Spitzer & Williams, 2001) score improvement from intake to discharge (any vs. no improvement), GAD-7 (Spitzer et al., 2006) score improvement (any vs. no improvement), SURE (Neale et al., 2016) improvement (any vs. no improvement), discharge status (“successful” (with staff approval) vs. “unsuccessful” (against staff approval, transfer elsewhere, incarcerated, death)), and days sober from a substance at discharge (less than 139 days (median at discharge) vs. 139 days or more). Logistic regression analyses controlled for age (years), gender identity (cis woman, cis man, and transgendered/non-binary), and race (white only vs. non-white only). The term “unstable” was used in tables as short-hand to designate participants who did not have a permanent address or were unhoused. Regression analyses used housing profiles which had the most participants.

## Results

### What are the housing profiles of participants who attend the IOP from intake to discharge?

Over half (51.1%) of participants in the study were already living in a recovery residence prior to starting their IOP intake (Table 1). It is likely that many in this group of participants had a scheduled admission to an IOP program and were waiting to start on their intake date. The next largest group was those who were living with other people at a permanent residence (19.0%). Of note, 12.0% of the sample were not living at a permanent address or were unhoused. The most common housing profile in the sample was participants who were living in a recovery residence at intake as well as at discharge (31.9%), followed by those living at a permanent residence at both intake and discharge (18.1%), those who started in a recovery residence and moved to a permanent address by discharge (16.5%), and those without a permanent address/unhoused at intake and in a recovery residence at discharge (6.8%). See Table 2 for a list of housing profiles.

### How are housing profiles related to treatment outcomes?

Participants who lived at a permanent address upon intake and moved to a recovery residence by discharge were more likely than those who started in a recovery residence and ended in a recovery residence to improve their PHQ-9 depression (OR: 2.69, CI: 1.27-5.71) and GAD-7 anxiety (OR: 2.12, CI: 1.04-4.35) scores during their treatment engagement length (Supplemental Tables 1 and 2). Those who started in a recovery residence and moved into a residential situation other than a permanent address or unstable housing were less likely than those who remained in recovery housing during the whole IOP treatment engagement to improve in their depression (OR: 0.30, CI: 0.12-0.74) and anxiety (OR: 0.31, CI: 0.13-0.78) scores.

Participants who moved away from a recovery residence by the end of their IOP treatment engagement (to a permanent address (OR: 0.56, CI: 0.37-0.84), unstable housing (OR: 0.40, CI: 0.19-0.83), or to other housing (OR: 0.20, CI: 0.08-0.51)) were less likely than those who stayed in a recovery residence though discharge to report improved SURE total scores for recovery (Supplemental Table 3). Consistent with this pattern, those who moved from a permanent address to a recovery residence were more likely to report improved SURE scores (OR: 2.07, CI: 1.40-5.39). Although not significant, those who started in an unstable living situation and moved toward a permanent address or into recovery housing trended toward improved SURE scores.

Nearly all housing profiles were less likely to result in a “successful” discharge (e.g., with staff approval) than those who started and ended their IOP treatment engagement in a recovery residence (ORs ranged from 0.07 to 0.34) (Supplemental Table 4). Similarly, nearly all profiles were less likely to have 139 days of sobriety or more upon discharge from the IOP (ORs ranged from 0.04 to 0.38) (Table 3).

**Table 1: Housing status before IOP intake**  
(N= 6301)

	N	% of total sample	% of known sample
<b>Housing before IOP intake</b>			
Recovery residence	3217	51.1	55.5
Living with others in permanent address	1197	19.0	20.7
No permanent address/unhoused	753	12.0	13.0
Living alone in permanent address	423	6.7	7.3
Other	202	3.2	3.5
Unknown	509	8.1	

**Table 2: Housing profiles from IOP intake to discharge** (N = 1506)

Housing Profile		N	% of known sample
IOP intake	IOP discharge		
Recovery residence	Recovery residence	<b>481</b>	<b>31.9</b>
Permanent address	Permanent address	<b>273</b>	<b>18.1</b>
Recovery residence	Permanent address	<b>249</b>	<b>16.5</b>
No permanent address/unhoused	Recovery residence	<b>102</b>	<b>6.8</b>
Permanent address	Recovery residence	<b>100</b>	<b>6.6</b>
Recovery residence	No permanent address/unhoused	<b>60</b>	<b>4.0</b>
No permanent address/unhoused	Permanent address	<b>54</b>	<b>3.6</b>
Recovery residence	Other	<b>40</b>	<b>2.7</b>
No permanent address/unhoused	No permanent address/unhoused	<b>34</b>	<b>2.3</b>
Other	Recovery residence	<b>30</b>	<b>2.0</b>
Other	Permanent address	<b>30</b>	<b>2.0</b>
Permanent address	Other	<b>17</b>	<b>1.1</b>
Permanent address	No permanent address/unhoused	<b>16</b>	<b>1.1</b>
No permanent address/unhoused	Other	<b>7</b>	<b>0.5</b>
Other	Other	<b>7</b>	<b>0.5</b>
Other	No permanent address/unhoused	<b>6</b>	<b>0.4</b>

## Conclusions

Just over half of participants for whom there was available data from IOP intake to discharge remained in the housing situation where they started at intake (31.9% stayed in a recovery residence, 18.1% stayed in a permanent address, 2.3% stayed without a permanent residence or unhoused, and 0.5% stayed in some other housing situation). Of the other half who changed housing during treatment, the most common shifts were moving from a recovery residence to a permanent residence (16.5%), from no permanent address/unhoused to a recovery residence (6.8%), and from a permanent address to a recovery residence (6.6%). Notably, just under 6% of participants move from potentially more stable housing to having no permanent address/being unhoused.

Those who started treatment at a permanent address and moved to a recovery residence by discharge were more likely than those who remained in a recovery residence throughout treatment to report improvement in depression, anxiety, and recovery scores. The improvement in scores might be explained by the change in housing environment, assuming that moving to a recovery residence might reduce exposure to a stressful environment at permanent addresses and increase support offered by the recovery residence. Alternatively, participants' depression, anxiety, and recovery might improve due to factors such as IOP treatment, and this may lead them to seek out more support through a recovery residence to maintain well-being.

It appears that moving away from a recovery residence during treatment (compared to staying in one throughout), including moving back into a permanent address, is associated with a decreased likelihood of improved recovery, "successful" discharge, and higher sober days at discharge. Of note, staying in a permanent address throughout treatment engagement, as well as remaining without a permanent address/unhoused, are both associated with a lower likelihood of "successful" discharge and higher sober days on discharge. Moreover, those who moved from no permanent address/unhoused to a permanent address were less likely than those who stayed in a recovery residence to discharge "successfully" and have higher sober days. These results highlight the potential role that consistent recovery housing might play in engaging and stabilizing people working toward recovery.

Although the present research brief is notable for including a large and somewhat diverse sample, several limitations should be acknowledged. First, the present brief used observational data, and thus inferences about causality should be tempered. Secondly, there was significant loss to follow-up after the intake survey, rendering sample sizes in some housing profiles small. Finally, outcome data analyses did not account for differences in sample characteristics. Further research would benefit from an increased sample size, as well as look at housing profiles beyond IOP admission to better understand how housing changes may impact outcomes longitudinally.

**Table 3. Associations between housing profiles and sober days at discharge (odds ratios and 95% CI, adjusted for age, gender identity, and race)**

Admit and discharge housing	>138 days		<139 days		OR	95% CI	p
	n	%	n	%			
	N = 326		N = 309				
Recovery, recovery	185	56.8	75	24.3	Ref		
Permanent, permanent	39	12.0	90	29.1	0.15	0.09-0.26	***
Recovery, permanent	57	17.5	68	22.0	0.31	0.19-0.50	***
Unstable, recovery	10	3.1	9	2.9	0.38	0.14-1.08	0.07
Permanent, recovery	21	6.4	3	1.0	2.03	0.57-7.26	0.28
Recovery, unstable	6	1.8	21	6.8	0.07	0.02-0.22	***
Unstable, permanent	6	1.8	13	4.2	0.20	0.06-0.60	**
Recovery, other	0	1.1	19	6.2	--	--	--
Unstable, unstable	2	0.6	11	3.6	0.04	0.004-0.29	**

<sup>a</sup> \*<0.05, \*\*<0.01, \*\*\*<0.001

**If you would like access to supplemental tables and figures, please e-mail [cpresearch@umn.edu](mailto:cpresearch@umn.edu).**

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## SUGGESTED CITATION

Van Wert, M. & Gus, E. (2024). Research Brief: Housing profiles among adults attending an intensive outpatient program for co-occurring disorders (March, 2024). Center for Practice Transformation, University of Minnesota.

# Research Brief - Supplemental Tables and Figures

Housing Profiles Among Adults Attending an Intensive Outpatient Program for Co-Occurring Disorders

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**Supplemental Table 1. Associations between housing profiles and PHQ-9 improvement, intake to discharge** (odds ratios and 95% CI, adjusted for age, gender identity, and race)

Admit and discharge housing	Improvement		No Improvement		OR	95% CI	p
	N = 517		N = 410				
	n	%	n	%			
Recovery, recovery	187	36.2	153	37.3	Ref		
Permanent, permanent	110	21.3	75	18.3	1.21	0.81-1.81	0.36
Recovery, permanent	90	17.4	83	20.2	0.90	0.60-1.35	0.61
Unstable, recovery	36	7.0	21	5.1	1.11	0.57-2.18	0.76
Permanent, recovery	38	7.4	14	3.4	2.69	1.27-5.71	*
Recovery, unstable	16	3.1	21	5.1	0.68	0.33-1.40	0.29
Unstable, permanent	20	3.9	14	3.4	1.06	0.46-2.42	0.89
Recovery, other	9	1.7	19	4.6	0.30	0.12-0.74	**
Unstable, unstable	11	2.1	10	2.4	1.27	0.47-3.46	0.64

<sup>a</sup> \*<0.05, \*\*<0.01, \*\*\*<0.001

**Supplemental Table 3. Associations between housing profiles and SURE total score improvement, intake to discharge** (odds ratios and 95% CI, adjusted for age, gender identity, and race)

Admit and discharge housing	Improvement		No Improvement		OR	95% CI	p
	N = 563		N = 372				
	n	%	n	%			
Recovery, recovery	220	39.1	121	32.5	Ref		
Permanent, permanent	111	19.2	75	20.2	0.72	0.48-1.09	0.12
Recovery, permanent	92	16.3	85	22.9	0.56	0.37-0.84	**
Unstable, recovery	40	7.1	18	4.8	1.13	0.56-2.29	0.73
Permanent, recovery	41	7.3	12	3.2	2.40	1.07-5.39	*
Recovery, unstable	15	2.7	22	5.9	0.40	0.19-0.83	*
Unstable, permanent	26	4.6	8	2.5	1.64	0.63-4.25	0.31
Recovery, other	9	1.6	19	5.1	0.20	0.08-0.51	**
Unstable, unstable	9	1.6	12	3.2	0.47	0.17-1.26	0.65

<sup>a</sup> \*<0.05, \*\*<0.01, \*\*\*<0.001

**Supplemental Table 2. Associations between housing profiles and GAD-7 improvement, intake to discharge** (odds ratios and 95% CI, adjusted for age, gender identity, and race)

Admit and discharge housing	Improvement		No Improvement		OR	95% CI	p
	N = 509		N = 416				
	n	%	n	%			
Recovery, recovery	184	36.2	156	37.5	Ref		
Permanent, permanent	104	20.4	80	19.2	1.10	0.74-1.65	0.64
Recovery, permanent	92	18.1	81	19.5	0.84	0.56-1.26	0.40
Unstable, recovery	33	6.5	24	5.8	1.01	0.52-1.97	0.98
Permanent, recovery	35	6.9	17	4.1	2.12	1.04-4.35	*
Recovery, unstable	19	3.7	28	4.3	0.87	0.42-1.80	0.71
Unstable, permanent	20	3.9	14	3.4	1.04	0.46-2.38	0.93
Recovery, other	9	1.8	18	4.3	0.31	0.13-0.78	*
Unstable, unstable	13	2.6	8	1.9	1.27	0.46-3.46	0.65

<sup>a</sup> \*<0.05, \*\*<0.01, \*\*\*<0.001

**Supplemental Table 4. Associations between housing profiles and discharge status** (odds ratios and 95% CI, adjusted for age, gender identity, and race)

Admit and discharge housing	Successful		Unsuccessful		OR	95% CI	p
	N = 531		N = 411				
	n	%	n	%			
Recovery, recovery	251	47.3	89	21.7	Ref		
Permanent, permanent	93	17.5	96	23.4	0.34	0.22-0.52	***
Recovery, permanent	78	14.7	101	24.6	0.24	0.16-0.37	***
Unstable, recovery	42	7.9	16	3.9	0.71	0.35-1.43	0.33
Permanent, recovery	38	7.2	16	3.9	0.75	0.38-1.50	0.42
Recovery, unstable	6	1.1	32	7.8	0.07	0.03-0.17	***
Unstable, permanent	13	2.5	21	5.1	0.25	0.11-0.58	**
Recovery, other	6	1.1	23	5.6	0.08	0.03-0.33	***
Unstable, unstable	4	0.8	17	4.1	0.08	0.02-0.28	***

<sup>a</sup> \*<0.05, \*\*<0.01, \*\*\*<0.001